

Application No. 10/807,932  
Amendment dated January 4, 2008  
Reply to Office Action of November 5, 2007

### REMARKS/ARGUMENTS

Applicant has carefully reviewed and considered the Office Action mailed on November 5, 2007, and the references cited therewith.

Claim 1 is amended, claims 33-55 are withdrawn, and no claims are canceled or added; as a result, claims 1-55 are now pending in this application.

#### § 112 Rejection of the Claims

Claims 1-32 were rejected under 35 USC § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicant regards as the invention.

Claims 1-32 were rejected under 35 USC § 112, second paragraph, as being incomplete for omitting essential elements, such omission amounting to a gap between the elements. See MPEP § 2172.01.

Applicant's independent claims 1, as currently amended, presently recites:

a) a field-effect transistor (FET) comprising a functionalized semiconductor nano-wire, wherein the functionalized semiconductor nano-wire includes a number of materials that each preferentially interacts with a particular fluid to be detected and effects a change of an electrical characteristic of the FET.

Support for such an amendment can be found in paragraph 0023 of the present disclosure as originally submitted.

Accordingly, Applicant respectfully requests reconsideration and withdrawal of the 112 rejection of independent claim 1, as currently amended, as well as those claims that depend therefrom.

#### §103 Rejection of the Claims

Claims 1-20 and 22-32 were rejected under 35 USC § 103(a) as being unpatentable over Bradley et al. (U.S. Pub. No. 2006/0228723) in view of Chung (U.S. Patent No. 5,576,563). Applicant respectfully traverses the rejection as follows.

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Applicant does not admit that the Bradley reference is indeed prior art and reserves the right to swear behind at a future date. In particular, the cited Bradley utility application (October 25, 2005) and the preceding provisional application (October 25, 2004) both were filed after the filing date of the present application (March 23, 2004). Because the cited Bradley reference is a continuation-in-part of applications filed prior to the present application, and the Examiner did not cite the earlier applications, Applicant infers that the earlier applications do not describe, teach, or suggest the materials used by the Examiner in the present Office Action as bases for 103 rejection of all claims in the present disclosure. Nonetheless, in the interest of advancing prosecution thereof, Applicant respectfully submits that the elements and limitations of the claims of the present application can be distinguished from the teachings of the Bradley reference for at least the following reasons.

Applicant's independent claim 1, as originally presented, recites, "integral thermal insulation disposed to maintain the field-effect transistor at the elevated temperature."

Applicant respectfully submits that the specification of the present disclosure supports inclusion of an integral thermal insulation disposed to maintain the field-effect transistor at the elevated temperature as an inventive step. For example, in the section headed INDUSTRIAL APPLICABILITY on page 5, the specification recites, "Devices made in accordance with the invention are useful in detecting gases in an environment while having both high sensitivity and low power consumption." (Paragraph 0047). The specification also recites, "The benefit of reduced power consumption is improved when both the FET and heater are disposed on the integral thermal insulation." (Paragraph 0029).

From Applicant's review of the Bradley and Chung references, the references do not describe, teach, or suggest an integral thermal insulation disposed to maintain the field-effect transistor at the elevated temperature. The Bradley reference does not teach or suggest an integral thermal insulation disposed to maintain the field-effect transistor at the elevated temperature, nor does the Bradley

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reference teach or suggest reducing power consumption by any means. The Chung reference appears to describe, "the close proximity of heating layer 30 to gate electrode layer 20 will significantly reduce the power required by heating layer 30 during operation". (Col. 2, lines 58-60). However, the Chung reference does not teach or suggest using "an integral thermal insulation disposed to maintain the field-effect transistor at the elevated temperature", as recited in the present disclosure, to further reduce power consumption, or for any other purpose.

As such, Applicant respectfully submits that the presently claimed invention is neither taught by, nor made obvious in view of, the combination of the Bradley and Chung references. Accordingly, Applicant respectfully requests reconsideration and withdrawal of the 103 rejection of independent claim 1, as currently amended, as well as those claims that depend therefrom.

Claim 21 was rejected under 35 USC § 103(a) as being unpatentable Bradley and Chung in view of Trautweiler et al. (ref. no. 1S). Applicant respectfully traverses the rejection as follows.

Claim 21 depends from independent claim 1. As described above, Applicant respectfully submits that independent claim 1 is in condition for allowance. Applicant respectfully submits that the Trautweiler reference does not cure the deficiencies of the Bradley and Chung references. That is, Applicant respectfully submits that with regard to the present invention, under KSR or otherwise, the Trautweiler reference does not describe, teach, or suggest, "integral thermal insulation disposed to maintain the field-effect transistor at the elevated temperature."

As such, Applicant respectfully requests reconsideration and allowance of dependent claim 21.

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### CONCLUSION

Applicant respectfully submits that the claims are in condition for allowance and notification to that effect is earnestly requested. The Examiner is invited to telephone Applicant's attorney Thi Dang at (858) 655-8519 to facilitate prosecution of this matter.

At any time during the pendency of this application, please charge any additional fees or credit overpayment to the Deposit Account No. 08-2025.

CERTIFICATE UNDER 37 C.F.R. §1.8: The undersigned hereby certifies that this correspondence is being transmitted to the United States Patent Office facsimile number (571) 273-8300 on January 4, 2008

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